

ABSTRACT

Novel biological labels are disclosed herein. The label comprises a
functionalized heterodiamondoid functioning as a biological probe, the probe having an
affinity for a target analyte molecule. Upon absorption of incident excitation radiation,
color center(s) located within the heterodiamondoid are caused to luminesce. The
photoemitted light may be detected and analyzed to yield information about the analyte.
The color centers in the heterodiamondoid will typically comprise nitrogen-vacancy
and/or nitrogen-pore complexes, but may also comprise a dopant impurity atom such as a
rare earth or transition metal element.